## **CLAIMS**

- 1. A method of stimulating neuronal growth or repair comprising exposing a target neuron or neuronal area to a solution of the metallothionein isoform MT-IIA.
- 2. A method according to claim 1 wherein said contact is by direct interaction of the target neuron or neuronal site with said solution.
- 3. A method according to claim 1 or 2 wherein said MT-IIA is naturally occurring human MT-IIA.
- 4. A method according to claim 1 or 2 wherein said MT-IIA is produced by chemical synthesis or by production in genetically manipulated cells or organisms.
- 5. A method according to claim 4 wherein said MT-IIA is recombinant human MT-IIA.
- 6. A method according to any one of claims 1 to 5 wherein said solution has a concentration of up to about  $5\mu g/ml$  metallothionein in a neurologically acceptable carrier.
- 7. A method according to claim 6 wherein said solution has a concentration of about  $5 \mu g/ml$  metallothionein in solution.
- 8. A method according to any one of claims 1 to 5 further including exposing said neuron or neuronal area to any one or a combination of metallothionein isoforms selected from MT-I, MT-II, MT-III and MT-IV.
- 9. A method according to claim 8 wherein said target neuron or neuronal area is exposed simultaneously to a combination of MT-IIA and any one or a combination of metallothionein isoforms selected from MT-I, MT-II, MT-III and MT-IV.
- 10. A method according to claim 8 wherein said target neuron or neuronal area is exposed sequentially to a combination of MT-IIA followed by any one or a combination of metallothionein isoforms selected from MT-I, MT-II, MT-III and MT-II.

- 11. A method according to claim 8 wherein said target neuron or neuronal area is exposed sequentially to a combination of any one of metallothionein isoforms selected from MT-I, MT-II, MT-III, MT-III and MT-IV.
- 12. A method according to any one of claims 1 to 11 wherein said neuron or neuronal area is located in the brain.
- 13. A method according to any one of claims 1 to 12 wherein said solution is administered to said neuron or neuronal area by any one or a combination of direct injection, intraperitoneal injection, oral administration or via genetically modified cells including stem cells.
- 14. A method of treatment of Alzheimer's Disease comprising administration to a patient in need of treatment a therapeutic composition including metallothionein in accordance with the method of any one of claims 1 to 13.
- 15. A method of treatment of Parkinson's Disease comprising administration to a patient in need of treatment a therapeutic composition including metallothionein in accordance with the method of any one of claims 1 to 13.
- 16. A method of treatment of motor neuron disease comprising administration to a patient in need of treatment a therapeutic composition including metallothionein in accordance with the method of any one of claims 1 to 13.
- 17. A method of treatment of head injury comprising administration to a patient in need of treatment a therapeutic composition including metallothionein in accordance with the method of any one of claims 1 to 13.
- 18. A therapeutic composition adapted for topical administration to an area of neuronal compromise said composition characterised by metallothionein isoform MT-IIA as an active ingredient.
- 19. A composition according to claim 18 wherein said active ingredient is combined with any one or a combination of metallothionein isoforms selected from MT-I, MT-II, MT-III and MT-IV.

- 20. A composition according to claim 18 or 19 wherein said metallothionein is naturally occurring human MT-IIA.
- 21. A composition according to any one of claims 18 or 19 wherein said metallothionein is produced by chemical synthesis or by production in genetically manipulated cells or organisms.
- 22. A composition according to claim 21 wherein said metalliothionein is recombinant human MT-IIA.
- 23. A composition according to any one of claims 18 to 22 further including a neurologically acceptable carrier particularly adapted for a topical administration to an area of neuronal compromise.
- 24. A composition according to claim 23 adapted for direct topical application.
- 25. A composition according to claim 23 adapted for intraperitoneal or intravenous administration to effect exposure of neurons by a non-topical route
- 26. A method according to any one of claims 1 to 17 substantially as hereinbefore described with reference to the examples.
- 27. A composition according to any one of claims 18 to 25 substantially as hereinbefore described with reference to the examples.